REMARKS

Claim Amendments

Claims 1, 19, and 21 have been amended to recite a reflective metal layer thickness of "about 20 to about 1,000 nanometers". Support for these amendments can be found, at least, in paragraph [0038] of the specification as filed.

Applicants are not conceding in this application that the amended claims would not have been patentable without the current amendments. The present claim amendments are intended only to facilitate expeditious prosecution of the allowable subject matter. Applicants respectfully reserve the right to present and prosecute these and other claims in one or more continuation and/or divisional patent applications.

Obviousness-Type Double Patenting Rejection

Claims 1, 4, 5, 7, 10, 11, 15-19, 21, and 22 stand rejected on the ground of nonstatutory obviousness-type double patenting over claims 1-16 of U.S. Patent No. 7,132,149 of Borst et al. ("Borst claims"). 3/28/2007 Office Action, page 2, paragraph no. 5. Applicants respectfully traverse the rejection to the extent that it may be applicable to the claims as currently amended.

In explaining the rejection, the Examiner has stated,

> Patented claims 1-2, 7, 13, and 16 disclose all the limitations as recited in instant independent claims 1, 19, and 21. Thus, the scope of independent claims 1 and 16 of the patent embraces that of instant claims 1, 19, and 21, rendering them obvious over each other.

6/26/2007 Office Action, page 2, first full paragraph. And in response to Applicants' arguments in their 4/16/2007 Amendment, the Examiner states,

> With respect to the obviousness-type double patenting, Applicants argue that the haze prevention layer in the instant claims is electrically non-conductive while that in the patented claims in US Pat. 7,132,149 is electrically conductive. It is noted that firstly the instant claims do not specify whether the haze prevention layer is electrically conductive or non-conductive. Secondly, the claim language is directed to "comprising"

which is open to the inclusion of materials in addition to the claimed materials.

6/26/2007 Office Action, pages 5-6, paragraph no. 12.

Applicants respectfully disagree with the Examiner's assertion that all the limitations of instant independent claims 1, 19, and 21 are disclosed in Borst claims 1, 2, 7, 13, and 16. In particular, instant independent claims 1, 19, and 21 each include the limitation that "the haze-prevention layer comprises a material having a volume resistivity of at least $1x10^{-4}$ ohm-centimeters measured according to ASTM D257 at 25°C". The Borst claims do not teach or suggest this limitation. To the contrary, the Borst claims require that the haze-prevention layer comprises a metal that inherently has a substantially lower volume resistivity. Specifically, Borst independent claims 1 and 16 state that "the haze-prevention layer comprises at least about 50 weight percent of a metal selected from antimony, chromium, cobalt, iridium, iron, molybdenum, nickel, palladium, platinum, rhenium, rhodium, tantalum, titanium, tungsten, and vanadium"; and Borst independent claim 15 states that "the haze-prevention layer comprises at least 50 weight percent chromium". A person of ordinary skill in the chemical art knows that the metals recited in Borst's independent claims have volume resistivities much lower than $1x10^{-4}$ ohm-centimeters. In support of this argument, Applicants are submitting herewith a table of electrical resistivities of the elements taken from the CRC Handbook of Chemistry and Physics, 56th Edition (1975-1976). The resistivity values for the metals recited in the Borst claims are reproduced below.

metal	electrical resistivity / temp.	temperature coefficient (μohm-cm/°C)
antimony	39 μohm-cm / 0°C	--
chromium	12.9 μohm-cm / 0°C	0.003
cobalt	6.24 μohm-cm / 20°C	0.00604
iridium	5.3 μohm-cm / 20°C	0.003925
iron	9.71 μohm-cm / 20°C	0.00651
molybdenum	5.2 μohm-cm / 0°C	--
nickel	6.84 μohm-cm / 20°C	0.0069
palladium	10.8 μohm-cm / 20°C	0.00377
platinum	10.6 μohm-cm / 20°C	0.003927
rhenium	19.3 μohm-cm / 20°C	0.00395
rhodium	4.51 μohm-cm / 20°C	0.0042

tantalum	12.45 μohm-cm / 25°C	0.00383
titanium	42 μohm-cm / 20°C	--
tungsten	5.65 μohm-cm / 27°C	--
vanadium	24.8-26.0 μohm-cm / 20°C	--

All of the resistivity values for Borst's metals are less than or equal to 42 μohm-cm (that is, less than $0.42x10^{-4}$ ohm-centimeters). It is therefore clear that all the resistivity values are substantially less than the $1x10^{-4}$ ohm-centimeters (100 microhm-centimeters) required for the haze-prevention layer material of Applicants' claims. Thus, the Borst claims do not teach or suggest including in the haze-prevention layer "a material having a volume resistivity of at least $1x10^{-4}$ ohm-centimeters" as required by Applicants' independent claims. Because the Borst claims do not teach or suggest all the limitations of Applicants' independent claims, a prima facie case of obviousness against those claims has not been established, and independent claims 1, 19, and 21 are patentable over the Borst claims. Given that claims 4, 5, 7, 10, 11, and 15-18 each depend ultimately from and further limit claim 1, Applicants respectfully request the reconsideration and withdrawal of the rejection of claims 1, 4, 5, 7, 10, 11, 15-19, 21, and 22 on the ground of nonstatutory obviousness-type double patenting over claims 1-16 of Borst.

Written Description Rejection

Claims 1, 4, 5, 7, 10, 11, 15-17, 21, and 22 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Specifically, the Examiner has stated,

> Claims 1, 19, and 21 contain the newly added limitation, "wherein the reflective metal layer has a thickness of at least 20 nm". The claimed range does not have proper support in the specification as originally presented, because it does not provide an upper limit to the thickness of the metal layer. The specification, paragraph 0050, discloses the thickness of the metal layer to be about 1nm to about 1000 nm, and within this range preferably at least about 20 nm. This description conveys the metal layer to be at least about 20 nm to about 1000 nm.

6/26/2007 Office Action, page 3, last paragraph.

Applicants have amended independent claims 1, 19, and 21 to recite a reflective metal layer thickness of "about 20 nanometers to about 1,000 nanometers". Support for these amendments can be found, at least, in paragraph [0038] of the specification as filed, which states that "The reflective metal layer may have a thickness of about 1 to about 1000 nanometers" and that "Within this range, the thickness may preferably be at least about 10 nanometers, more preferably at least about 20 nanometers".

In view of the present amendments, Applicants respectfully request the reconsideration and withdrawal of the rejection of claims 1, 4, 5, 7, 10, 11, 15-17, 21 under 35 U.S.C. § 112, first paragraph.

Obviousness Rejection over Knapp + (Fraizer or Tanikita)

Claims 1, 4, 5, 7, 10, 11, 15-17, 19, 21, and 22 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent No. 5,846,649 to Knapp et al. ("Knapp") in view of U.S. Patent No. 6,520,650 to Fraizer ("Fraizer") or U.S. Patent No. 5,833,889 to Tanikita et al. ("Tanikita"). Applicants respectfully traverse the rejection to the extent that it may be applicable to the claims as currently amended.

Knapp generally describes an abrasion-resistant dielectric composite product comprising a substrate and an abrasion wear resistant coating material comprising carbon, hydrogen, silicon, and oxygen and a dielectric material. Knapp abstract. The composite is intended for use on lenses such as ophthalmic lenses, safety lenses, sunglass lenses, and sports optics. Knapp abstract; col. 1, ll. 14-19. Knapp's definition of "lens" expressly requires that the lens "permit viewing". Knapp, col. 1, ll. 22-30. The use of an optional layer of "semi-transparent reflective metallic material" is taught. Knapp, col. 13, ll. 30-35. In order to allow sufficient optical transmission through the lens, the thickness of this metallic layer "is typically <100 Å". Knapp, col. 13, ll. 38-40.

Fraizer generally describes improvement of a no base coat vehicle headlamp reflector by addition of a plasma deposited layer of a siloxane material. Fraizer abstract. The reflector includes a reflective layer **18** that "may be made with an aluminization layer, or similar thin, reflective metal layer". Fraizer, col. 4, ll. 14-15. "Commonly the

aluminum reflective layer 18 is less than 1000 angstroms thick. The preferred aluminum thickness is between about 450 and 900 angstroms with 600 believed to be the best." Fraizer, col. 4, ll. 20-32.

Tanikita generally describes a light reflector component prepared by an injection molding process in which a resin film having a shape of light reflective surface is placed on a protrusion element formed on a male half of the injection mold, and after the injection mold is closed, a molten resin is injected into a space defined by the male half and a female half. Tanikita abstract.

Applicants' independent claims 1, 19, and 21 as currently amended require that the reflective metal layer have a thickness of about 20 to about 1,000 nanometers.

The Examiner acknowledges that article in Knapp is intended to permit viewing. 6/26/2007 Office Action, page 5, fifth paragraph. The Examiner further acknowledges that Knapp does not teach that the reflecting metal layer be at least 20 nanometers thick, as required by Applicants' claims. 6/26/2007 Office Action, page 5, second paragraph. However, the Examiner asserts that

> it would have been obvious to one of ordinary skill in the art to have employed the thickness of the metal layer as taught by Fraizer in the article of Knapp because Fraizer discloses that at [that] thickness the metal layer would obtain optimal reflection with the least cost.

6/26/2007 Office Action, page 5, fourth paragraph. Applicants respectfully disagree. There are at least two reasons that one of ordinary skill in the art would <u>not</u> have modified Knapp by substituting Fraizer's "ideal" 60 nanometer reflective layer thickness for Knapp's metallic layer thickness of less than 10 nanometers. First, Knapp expressly teaches away from such a modification. Second, the proposed modification would destroy the intended function of Knapp's article.

<u>Knapp Expressly Teaches Away from the Examiner's Proposed Modification</u>

One of ordinary skill in the art would not have modified Knapp by substituting Fraizer's "ideal" 60 nanometer reflective layer thickness for Knapp's metallic layer

thickness of less than 10 nanometers because Knapp expressly teaches away from such a modification. The Federal Circuit has repeatedly recognized that proceeding contrary to the accepted wisdom in the art represents strong evidence of unobviousness. *In re Hedges*, 228 U.S.P.Q. 685, 687 (Fed. Cir. 1986); *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 220 U.S.P.Q. 303, 312 (Fed. Cir. 1983). In the present rejection, the Examiner has asserted that "it would have been obvious to one of ordinary skill in the art to have employed the thickness of the metal layer as taught by Fraizer in the article of Knapp because Fraizer discloses that at [that] thickness the metal layer would obtain optimal reflection with the least cost". In other words, the Examiner's proposed modification is to substitute Fraizer's reflective layer thickness (ideally 60 nanometers) for Knapp's metallic layer thickness (<10 nanometers). However, the Examiner fails to acknowledge that Knapp expressly teaches away from the modification. Knapp expressly describes the metallic layer as "semi-transparent" and states that "the thickness of the metallic layer is typically <100 Å to allow sufficient optical transmission of the lens." Knapp, col. 13, ll. 30-40. Contrary to the Examiner's suggestion, one skilled in the art would not be motivated to "obtain optimal reflection with the least cost" in an article that a human being must be able to see through. Thus, Knapp expressly that the metallic layer must be less than 10 nanometers thick for the lens to maintain sufficient transparency to visible light, and Knapp thus teaches away from a proposed modification that would substitute a 60 nanometer thickness for a thickness less than 10 nanometers. For this reason alone, Applicants' claims, which require a reflective metal layer thickness of at least 20 nanometers, are patentable over the proposed modification of Knapp according to Fraizer.

The Examiner's Proposed Modification Destroys Knapp's Intended Function

Furthermore, one of ordinary skill in the art would not have modified Knapp by substituting Fraizer's "ideal" 60 nanometer reflective layer thickness for Knapp's metallic layer thickness of less than 10 nanometers because such a modification would destroy the intended function of the Knapp article. If a proposal for modifying the prior art in an effort to attain the claimed invention destroys the intended function of the art, then the requisite motivation to make the modification would not have existed. *In re*

Gordon, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984). As acknowledged by the Examiner, Knapp is directed broadly to lenses that permit viewing. Knapp, col. 1, ll. 22-30. Although Knapp teaches the use of an optional metallic layer, the thickness of the metallic layer is taught to be "typically <100 Å" (i.e., less than 10 nanometers). Knapp, col. 13, ll. 38-40. Substituting the "ideal" 60 nanometer reflective layer thickness of Fraizer for the less than 10 nanometer metallic layer thickness of Knapp would prevent the transmission of visible light through the Knapp article. In other words, the proposed modification would destroy the intended function of the Knapp article as a lens that permits viewing by transmitting visible light. There is therefore no motivation for one skilled in the art to substitute the Fraizer reflective layer thickness for the Knapp metallic layer thickness. For this reason alone, Applicants' claims, which require a reflective metal layer thickness of at least 20 nanometers, are patentable over the proposed modification of Knapp according to Fraizer.

Summary

One of ordinary skill in the art would not be motivated to modify Knapp by substituting Fraizer's reflective layer thickness of 60 nanometers for Knapp's metallic layer thickness of less than 10 nanometers because the proposed modification would contradict the express teaching of Knapp and destroy the intended function of Knapp's articles as lenses that can be seen through.

(Although the rejection was made over Knapp in view of Fraizer or Tanikita, the Office Action did not discuss any reason for citing Tanikita. Assuming for the sake of argument that Tanikita was cited for it teaching to use a metal film thickness of 1000 angstroms (100 nanometers; see Tanikita col. 7, ll. 53-54; and claims 8 and 10), the same arguments discussed in the context of Fraizer apply: one skilled in the art would not be motivated to substitute Tanikita's 100 nanometer metal film thickness for Knapp's less than 10 nanometer metallic layer thickness because doing so would contradict the express teachings of Knapp and destroy the intended function of Knapp's article as a lens that transmits visible light.)

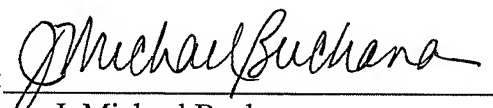
Accordingly, Applicants' independent claims 1, 19, and 21, which each require a reflective metal layer thickness of about 20 to about 1000 nanometers, are patentable over Knapp in view of Fraizer or Tanikita. Given that claims 4, 5, 7, 10, 11, 15-17, and 22 each depend ultimately from and further limit claim 1 or 21, Applicants respectfully request the reconsideration and withdrawal of the rejection of claims 1, 4, 5, 7, 10, 11, 15-17, 19, 21, and 22 under 35 U.S.C. § 103(a) over Knapp in view of Fraizer or Tanikita.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance is requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 50-3619 maintained by Assignee.

Respectfully submitted,

CANTOR COLBURN LLP
Applicants' Attorneys

By: 
J. Michael Buchanan
Registration No. 44,571

Date: July 18, 2007
Customer No.: 23413
Telephone: (860) 286-2929